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FER WILLEMSE. — Classification and distribution of the species of *Eupholidoptera* Ramme of Greece (Orthoptera, Tettigonioidea, Decticinae). p. 39—69, fig. 1—190, pl. 1—2.

CLASSIFICATION AND DISTRIBUTION OF THE SPECIES OF *EUPHOLIDOPTERA* RAMME OF GREECE (ORTHOPTERA, TETTIGONIOIDEA, DECTICINAE)

by

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With 190 text-figures and 2 plates

ABSTRACT

On the basis of variability, several species and subspecies of the genus *Eupholidoptera* Ramme, 1951, are redefined. Consequently some modifications of nomenclature are proposed: i.e., to synonymise *E. chabrieri magnifica* (Costa, 1863) and *E. chabrieri kaltenbachi* Adamović, 1972, with *E. chabrieri schmidtii* (Fieber, 1861); to consider *E. garganica* La Greca, 1959, a subspecies of *E. chabrieri* (Charpentier, 1825) and *E. chabrieri epirotica* (Ramme, 1927) a distinct species; to synonymise *E. danconai* La Greca, 1959, with *E. megastyla* (Ramme, 1939) and *E. smyrnensis festae* (Giglio Tos, 1914) with *E. smyrnensis* (Brunner von Wattenwyl, 1882). Two new species are described: *E. leucasi* from the Ionian island of Levkás and *E. icariensis* from the Aegean island of Ikaría. A key to the 14 species and two subspecies known from Greece, including *Uvarovistia* (*Karabagia*) *uvarovi* (Karabag, 1952) together with a distribution map are given.

INTRODUCTION

During the course of preliminary investigations of the Greek Orthoptera, the important point emerged that the classification of some species of *Eupholidoptera* Ramme, 1951, was not satisfactory. Apparently the amount of variation was not always sufficiently known as some features seem to have been weighted excessively. The need became obvious to revise some taxa. Since the erection of the genus in 1951, the number of species known from Greece has about doubled, including two species described in this paper as new. The distribution of the species in the Greek area was badly known due to insufficient material from the mainland of Greece and confusing nomenclature in the past. On account of rich material now available and the reasons mentioned above, it seems useful to give a survey of the systematics and faunistics of the species of the genus occurring in Greece.

MATERIAL AND METHODS

Some material has been borrowed from the Instituut voor Taxonomische Zoölogie, Amsterdam (ITZ), the Naturhistorisches Museum, Wien (NMW) and

the Istituto Policattedra di Biologia Animale, Catania (IBA) (abbreviations used in the subsequent text are in parentheses). Additional Greek material (CW) has been collected by the author and his son Lucas (accompanied by J. Tilmans in 1976) in 1971 and all successive years up to 1978. The dates of capture range from 1st July to 11th August, the altitudes of the localities from sealevel up to 2000 m. The Greek orthography is transliterated into Roman characters in agreement with the system proposed by the Permanent Committee on Geographical Names for British Official Use, London. References listed under the species concern important taxonomical ones, those recording original material from Greece and synonyms. The figures are original unless otherwise stated, those of the epiphallus drawn after dissection, slight maceration in 10% KOH solution and soaking in distilled water.

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SYSTEMATIC PART

Eupholidoptera Ramme, 1951

Eupholidoptera Ramme, 1951: 195, 197—211.

Type-species: *Locusta chabrieri* Charpentier, 1825.

Diagnosis. — Reference is made to the original description. Mainly defined as follows: last abdominal tergite completely black in male, partly black in female; ovipositor narrow, as seen from above, i.e. strongly compressed laterally, and comparatively long.

Differential diagnosis. — Reference is made to the key to the genera of the Pholidopterini in Ramme (1951: 195).

Distribution. — The range of the genus covers southern Europe, Anatolia, Syria, Lebanon and Israel. The distribution of the species in Greece is shown on map 1.

Remarks. — Hitherto about 30 species and some subspecies of *Eupholidoptera* have been recognized. Ramme (1951) recorded eight species and one subspecies from Greece. This number had increased considerably since. In this study the following taxa are recorded from Greece:

E. chabrieri schmidtii (Fieber, 1861)

E. chabrieri garganica La Greca, 1959, stat. nov.

E. leucasi sp.n.

E. epirotica (Ramme, 1927)

E. smyrnensis (Brunner von Wattenwyl, 1882)

E. megastyla (Ramme, 1939)

E. prasina (Brunner von Wattenwyl, 1882)

E. icariensis sp.n.

E. spinigera (Ramme, 1930)

E. astyla (Ramme, 1927)

E. cretica Ramme, 1951

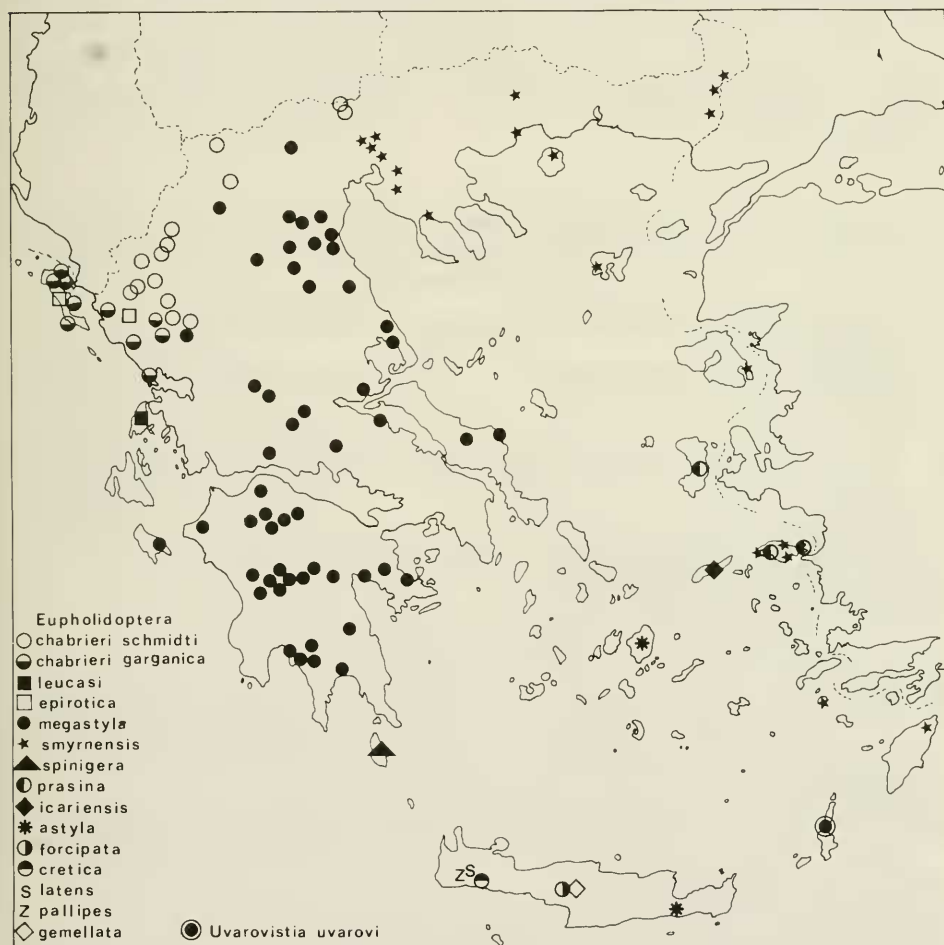
E. forcipata Willemse & Kruseman, 1976

E. latens Willemse & Kruseman, 1976

E. pallipes Willemse & Kruseman, 1976

E. gemellata Willemse & Kruseman, 1976

Eupholidoptera seems to be an unnatural grouping of species, as too much emphasis has been placed on morphological features. Presumably quite a number of species of Pholidopterini are not yet known. At this stage not much can be said on generic or specific groupings. Regarding the species of *Eupholidoptera* from Greece the following general observations can be made. Using the morphology of



Map 1. Distribution of *Eupholidoptera* species in Greece

the male and female subgenital plate, the male cercus and the coloration, *E. chabrieri*, *E. leucasi*, *E. epirotica*, *E. smyrnensis* and *E. megastyla* form a distinct group. *E. pallipes* and *E. gemellata* differ from this group in more rounded pronotal dorsum, form of epiphallus and the coloration. Similarly *E. prasina*, *E. icariensis* and *E. spinigera* may be grouped together on account of the form of the male and female subgenital plate and the unarmed male cercus. This leaves a more heterogeneous assemblage of species, i.e. *E. astyla*, *E. cretica*, *E. forcipata* and *E. latens*, with unarmed male cercus and resembling coloration but with diverse forms of male subgenital plate and epiphallus.

Uvarovistia uvarovi (Karabag, 1952), originally described under *Eupholidoptera*, seems closer to some species of the latter genus rather than to the remainder of *Uvarovistia*. Therefore this species is treated in this paper together with the species of *Eupholidoptera*.

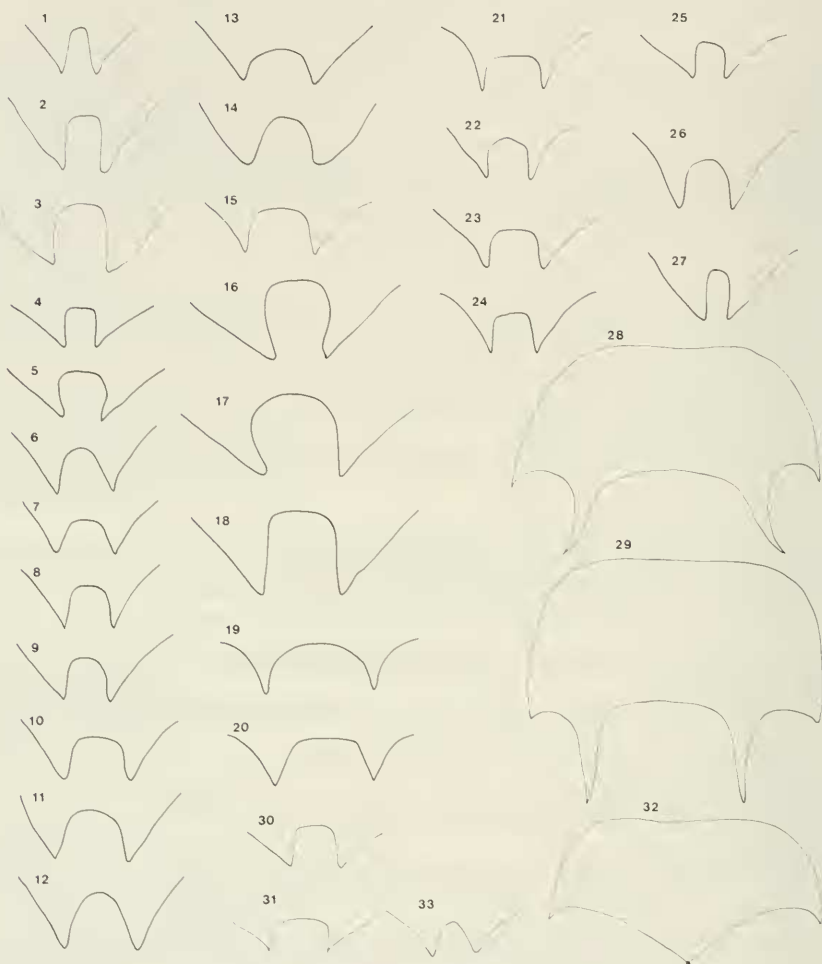
Specific characters are found mainly in the external abdominal terminalia and the epiphallus of the male, the female subgenital plate and the coloration in both sexes. Sometimes the shape of the pronotal dorsum and the proportions of the hind femur are useful. Taxonomic distinction is usually apparent, sometimes, however, difficult. The male provides the most reliable, specifically diagnostic features. The female characters are often not useful to differentiate between closely allied taxa.

Key to the species and subspecies of *Eupholidoptera* and *Uvarovistia* from Greece (males). (It is emphasized here that identification should be based on a study of the male and its epiphallus.)

1. Black coloration of distal abdominal tergites confined to last tergite. Cercus slender, much longer than greatest width of base, slightly tapering apically (figs. 34—69) 2
- Black coloration of distal abdominal tergites not confined to last tergite, but extending proximally over lateral parts of penultimate tergite. Cercus, if viewed from above, almost triangular, greatest width of base almost equal to length of cercus (fig. 70) (Kárpáthos) *Uvarovistia uvarovi* (Karabag)
2. Cercus with hook-shaped basal or subbasal tooth (figs. 34—65) 3
- Cercus unarmed (figs. 66—69) 10
3. Tooth of cercus situated at base (figs. 34—51, 54—65) 4
- Tooth of cercus situated just distal to base (figs. 52—53) 8
4. Emargination of hind margin of last abdominal tergite very wide, about as wide as length of cercus (figs. 28—29) (Makedhonía, Thráki, Thásos, Límnos, Lésbos, Sámos, Nísiros, Ródhos) *smyrnensis* (Brunner von Wattenwyl)
- This emargination much narrower (figs. 1—27) 5
5. Extending apical parts of epiphallus very close together, slender and straight (figs. 173—180, 184, 185) (Zákinthos, Pelopónnisos, Steréa, Éllas, Thessalía, SE Ípiros, SW Makedhonía) *megastyla* (Ramme)
- These parts widely separated from each other (figs. 119, 164, 169—170) . . . 6
6. Pronotal dorsum of general colour but middle of prozona black (pl. 1 figs. 3—4). Fused part of epiphallus slender, convex laterally, without plate-like

- lateral expansions, as in figs. 169—170 (Ípiros, Kérkira) . . . *epirotica* (Ramme)
- Pronotal dorsum entirely of general colour. Fused part of epiphallus wider, plate-like, lateral expansions more or less developed (figs. 119—164) . . . 7
7. Epiphallus with fused part strongly inflated and extending apical parts strongly recurved, ranging as in figs. 153—162 (Kérkira, W. Ípiros)
- *chabrieri garganica* La Greca
- These characters less apparent, as in figs. 125—148 (E. Ipiros, W. & N. Makedhonía) *chabrieri schmidtii* (Fieber)
8. Pronotal dorsum slightly flattened. Pronotal lateral lobe black, lower margin broadly bordered yellowish (pl. 1 fig. 2). Epiphallus with fused part very short, wide and extending apical parts well separated from each other, very long and strongly recurved (figs. 165—168) (Levkás) *leucasi* sp.n.
- Pronotal dorsum smoothly rounded. Pronotal lateral lobe of general colour with black dot dorso-posteriorly (as in pl. 1 fig. 6, pl. 2 fig. 8). Epiphallus with fused part long, without well separated extending apical parts (Willemse & Kruseman, 1976: pl. 7 figs. 35—38) 9
9. Tip of epiphallus with a lateral spine on each side (Willemse & Kruseman, 1976: pl. 7 figs. 35—36) (Kríti) *pallipes* Willemse & Kruseman
- Tip of epiphallus laterally rounded and without spines (Willemse & Kruseman, 1976: pl. 7 figs. 37—38) (Kríti) *gemellata* Willemse & Kruseman
10. Lobes of subgenital plate with needle-like apex (figs. 112—115) 11
- These lobes with obtuse or rounded apex (figs. 117—118; Willemse & Kruseman, 1976: figs. 2, 7, pls. 4—5 figs. 14—15, 21—22) 13
11. Pronotal lateral lobe black, lower margin widely bordered yellowish. Styli set more proximad, their tips not reaching apex of subgenital plate (Ramme, 1930: fig. 8) (Kíthira) *spinigera* (Ramme)
- Pronotal lateral lobe of general colour with black dot dorso-posteriorly (pl. 1 fig. 6, pl. 2 fig. 8). Styli set more distad, their tips reaching apex of subgenital plate (figs. 112—115) 12
12. Epiphallus with extending apical parts distinctly divergent, as in fig. 186 (Ikária) *icariensis* sp.n.
- Epiphallus with apical part expanding laterally with median apical incision, as in figs. 189—190 (Sámos, Khíos) *prasina* (Brunner von Wattenwyl)
13. Lobes of subgenital plate rounded apically, styli set pre-apically on ventral surface and pointing ventrad (figs. 117—118; Willemse & Kruseman, 1976: pls. 4—5, figs. 15, 22) 14
- Lobes of subgenital plate narrowly obtuse apically, styli set on apex and pointing distad (Willemse & Kruseman, 1976: fig. 7, pl. 5 fig. 21) 15
14. Epiphallus asymmetrical, extending apical parts close together and pointing laterally (fig. 187) (Náxos, Kríti) *astyla* (Ramme)
- Epiphallus symmetrical, extending apical parts divergent and pointing dorsad (Willemse & Kruseman, 1976: pl. 7 figs. 32—34) (Kríti)
- *latens* Willemse & Kruseman
15. Apical parts of epiphallus fused over almost whole length, tip only slightly divergent (Willemse & Kruseman, 1976: fig. 9) (Kríti) *cretica* Ramme
- Apical parts of epiphallus fused in proximal half, strongly divergent, hook-like

and recurved in distal half (Willemse & Kruseman, 1976: pl. 6 figs. 29—31)
(Kriti) *forcipata* Willemse & Kruseman



Figs. 1—33. Emargination of the hind margin of the last abdominal tergite in the male of *Eupholidoptera* species: 1—15, *E. chabrieri* (s.l.) (1—2, *E. chabrieri chabrieri* (Charpentier): (1) Col de l'Ablé, Lucéram; (2) Mt. Puzillo, Velino Mts.; 3—10, *E. chabrieri schmidtii* (Fieber): (3) Sperlonga, Latina; (4) Kanešta, Istra; (5) Učka, Istra; (6) Álona, Flórina; (7) Évzonoí, Kilkis; (8) Klisoúra, Kastoría; (9—10) Kalpákion, Ioánnina; 11—14, *E. chabrieri garganica* La Greca: (11—12) Panayía, Préveza; (13) lake Antinioti, Kérkira; (14) Benítzes, Kérkira; 15, *E. chabrieri bimucronata* (Ramme), Colle S. Rizzo, Messina; 16—18, *E. leucasi* sp. n., paratypes; 19—20, *E. epirotica* (Ramme): (19) holotype; (20) paratype; 21—27, *E. megastyla* (Ramme): (21—22) Kámbos, Messinía; (23—24) Lekhiná, Ilía; (25) Mt. Pílion, Magnisia; (26—27) Rámia-Livádhion, Árta; 28—29, *E. smyrnensis* (Brunner von Wattenwyl): (28) Souflíon; (29) Amórión, both Évros; 30—31, *E. prasina* (Brunner von Wattenwyl): (30) holotype; (31) Sámos; 32, *E. icariensis* sp. n., holotype; 33, *E. astyla* (Ramme), Skonef.

***Eupholidoptera chabrieri* (Charpentier, 1825)**

(figs. 1—15, 34—51, 71—90, 119—164)

Locusta chabrieri Charpentier, 1825: 119.*Thamnotrizon chabrieri*; Brunner von Wattenwyl, 1861: 293, pl. 10 figs. 6a—d.*Pholidoptera schmidtii*; Ramme, 1927: 130, figs. 10a, 11a; 1930: 809, figs. 5—7, 9.*Pholidoptera chabrieri*; Chopard, 1951: 128, figs. 210, 211, 223.*Eupholidoptera chabrieri*; Ramme, 1951: 198, figs. 44, 45, 48, 50; Harz, 1969: 370, figs. 1116, 1121—1124, 1131—1142 (partim).

Diagnosis. — Reference is made to general descriptions by previous authors. The species is well defined in the male, i.e. by the moderate emargination of the hind margin of the last abdominal tergite (figs. 1—5), cercus with basal tooth (figs. 34—51), form, spines (figs. 71—90) and styli of subgenital plate, epiphallus (figs. 119—164) and coloration.

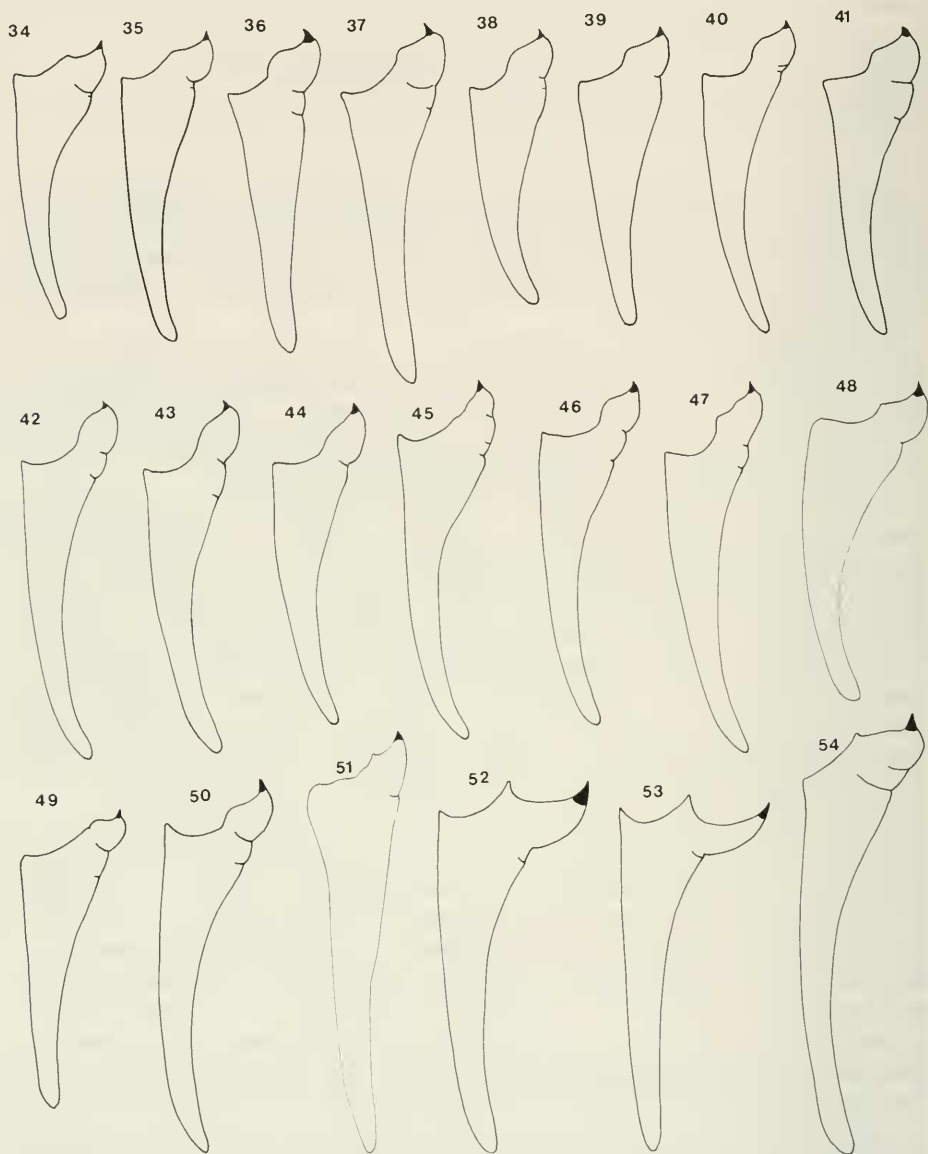
Differential diagnosis. — The male is, with few exceptions, readily distinguishable from other species. Judging from the descriptions and figures, the distinction between *E. chabrieri* and *E. marani* Peshev, 1960, and *E. beybienkoi* Peshev, 1962, is not clear. The female of *E. chabrieri* is indistinguishable from that of its closest relatives, e.g. in Greece *E. leucasi* and *E. megastyla*.

Remarks. — Hitherto the following subspecies have been recognized by La Greca (1959), Harz (1969) and Adamović (1972): *E. chabrieri chabrieri* (Charpentier, 1825), S. France, S. Switzerland, N.W. & N. & (?) Central Italy; *E. chabrieri brunneri* (Targioni-Tozzetti, 1881), considered of doubtful validity, (?) N. & Central Italy; *E. chabrieri magnifica* (Costa, 1863), (?) Central Italy, S.W. Italy, (?) Sardegna; *E. chabrieri bimucronata* (Ramme, 1927), Sicilia, (?) Sardegna; *E. chabrieri schmidtii* (Fieber, 1861), N.E. Italy, Istra; *E. chabrieri usi* Adamović, 1972, Adriatic Islands of Krk, Cres, Lošinj; *E. chabrieri galvagnii* Adamović, 1972, Hercegovina, Montenegro; *E. chabrieri kaltenbachii* Adamović, 1972, Serbia, Yugoslav Makedonija; *E. chabrieri epirotica* (Ramme, 1927), N.W. Greece.

These subspecies were recognized mainly on the basis of differences of the epiphallus. In some cases also very slight distinction of external male abdominal terminalia, ovipositor, measurements and coloration were noted or figured. Analogously, an attempt was made to arrange the Greek material at hand. This, however, failed largely, due to considerable variation. Exception is made for *E. epirotica*, which is regarded here a distinct species. But the remainder could be arranged only roughly, i.e., populations agreeing with several known or representing unknown forms of *E. chabrieri* (s.l.), those agreeing with *E. garganica*, and others linking both. Thus the need became obvious for some review of the *E. chabrieri*-complex.

A careful study of the literature and rich material before me (ITZ, CW, IBA), covering most of the range of the species, reveals that, with few exceptions, the characters overlap to such an extent that they cannot be considered reliable (figs. 1—15, 34—51, 71—90). Particularly it seems that, at least in some cases, too great a diagnostic emphasis was placed on the form of the epiphallus (figs. 119—164). Distinction of very few geographical races or subspecies seems justified, e.g. the nominate form (figs. 119—124) and *E. chabrieri bimucronata* (figs. 163—164).

However, the distinction between *E. chabrieri magnifica* (figs. 125—126) and *E. kaltenbachii* (figs. 131—136) is not clear and the distinction between these taxa and



Figs. 34—54. Left male cercus of *Eupholidoptera* species, dorsal views: 34—51, *E. chabrieri* (s.l.) (34—35, *E. chabrieri chabrieri* (Charpentier): (34) le Plan du Peiron, Grasse; (35) Col de Brouis, Castellane; 36—48, *E. chabrieri schmidtii* (Fieber): (36—37) Učka, Istra; (38—39) Alona, Flórina; (40) Klisoura, Kastoria; (41) Botzarás, (42) Kaléntzion, (43—44) Kalpákion, (45—46) Asfáka, all Ioánnina; (47) Katarráktis, Arta; (48) Sperlonga, Latina; 49—50, *E. chabrieri garganica* La Greca, Gazátika, Kérkira; 51, *E. bimucronata* (Ramme), Colle S. Rizzo, Messina; 52—53, *E. leucasi* sp. n., paratypes; 54, *E. epirotica* (Ramme), paratype.

E. chabrieri schmidt (from Istra) (figs. 127—130) refers merely to different measurements. On account of these observations it appears necessary to propose some modifications of the nomenclature (see below).

Kaltenbach (1967) gave a survey of the confusing way in which the name *chabrieri* has been used previously. Records under this name from the period 1927 to 1951 usually refer the name to *E. smyrnensis*, while for *chabrieri* as now understood usually the name *schmidt* has been used. Previous records of Greek material referred to *E. chabrieri* are now assigned to *E. chabrieri garganica*, *E. chabrieri schmidt*, *E. epirotica* and *E. megastyla*.

Distribution. — The range of *chabrieri* (s.l.) covers S. France, S. Switzerland, all of Italy except for its extreme South East, Sicilia, Sardegna and some neighbouring islands, the Adriatic islands, all of Yugoslavia, Albania, extending into N.W. Greece, Bulgaria (?) and Romania. Kaltenbach (1967) pointed out that the species does not occur in Anatolia.

***Eupholidoptera chabrieri schmidt* (Fieber, 1861)**
(figs. 3—10, 36—48, 73—83, 125—148)

Thamnotrizon schmidt Fieber, 1861: 197 (nec Corfu).

Thamnotrizon magnificum Costa, 1863: 28. *Syn. nov.*

Thamnotrizon chabrieri; Brunner von Wattenwyl, 1882: 334 (partim).

Pholidoptera schmidt; Ramme, 1927: 130, figs. 10a, 11a.

Eupholidoptera chabrieri; Ramme, 1951: 198, 204, 206, 207, 209, figs. 44, 45, 48, 50.

Eupholidoptera chabrieri schmidt; La Greca, 1959: 62, figs. 68, 69; Harz, 1969: 370, 371, fig. 1116; Adamović, 1972: 195, 198, figs. 1—3.

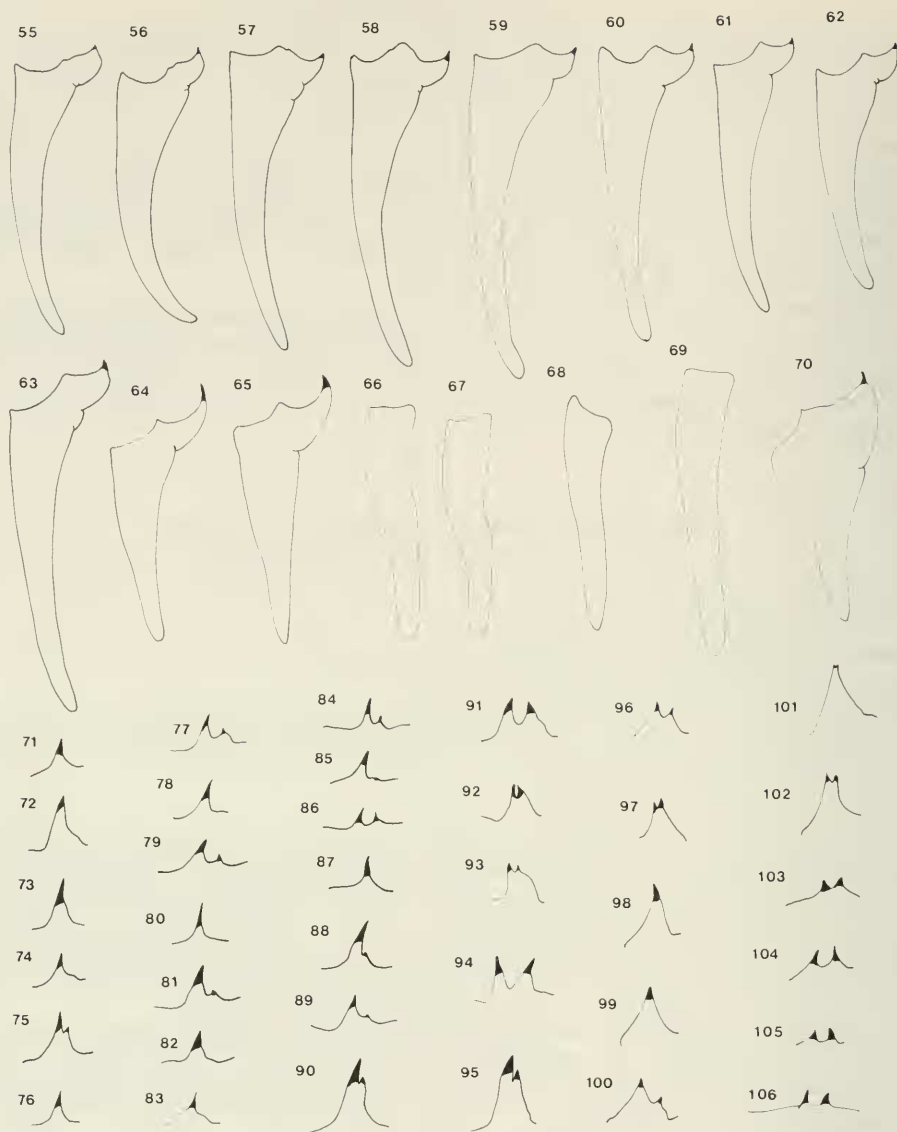
Eupholidoptera chabrieri kaltenbach Adamović, 1972: 198, figs. 1—3. *Syn. nov.*

Material studied. — Makedhonía: Kilkís: Évzonoi, 3♂; Plataniá, 1♀; Flórina: Álona, 2 km E., 2♂ 3♀; Kastoría: Klisoúra, 1♂ (all CW). Ípiros: (=Epirus), Erber, Coll. Br. v. W., 6885, *Pholidoptera schmidt* Fieb. det. Ramme, 1♂ 1♀ (NMW); Ioánnina: Pápingon, 4♂ 1♀; Kalpákion, 4♂ 4♀; Asfáka, 3♂ 5♀; Kónitsa - Eléfhtheron, 1♂; Á. Paraskeví, Mt. Smólikas, 2♂; Koutselió, 1♂; Kaléntzion, 2♂ 3♀; Botzarás, 2♂; Vrosína, 3♂ 1♀; Árta: Katarráktis, 1♂ (all CW).

Diagnosis. — Epiphallus with extending apical parts usually divergent and, in lateral view, slightly to moderately recurved; fused part inflated only longitudinally in the middle and provided with well developed plate-like lateral expansions, as in figs. 125—148.

Variation. — It seems appropriate to give series of figures covering the considerable amount of variation: epiphallus in figs. 125—148, male cercus in figs. 36—48, spines of male subgenital plate in figs. 73—83, emargination of hind margin of male last abdominal tergite in figs. 3—10.

Differential diagnosis. — The distinction between *E. chabrieri schmidt* and the nominate subspecies appears arbitrary, being difficult to define. It is supposed that the extending apical parts of the epiphallus are parallel or almost so in the nominate form (figs. 119—124) against slightly divergent in *E. chabrieri schmidt* (figs. 127—130). The characters of some material at hand, however, disagree with this assumption (figs. 137—138, 147—148). The distinction from *E. chabrieri*



Figs. 55—70. Left male cercus of *Eupholidoptera* species, dorsal views: 55—63, *E. megastyla* (Ramme): (55—56) Kallithéa, Ilía; (57—59) Rámia — Livádhion, Arta; (60) Akhladhókambos, Argolís; (61) Melidhoní, Fthiótis; (62) Mt. Ólimbos, Lárisa; (63) Lekhainá, Ilía; 64—65, *E. smyrnensis* (Brunner von Wattenwyl): (64) Souflíon, Evros; (65) Yerakiní, Khalkidhikí; 66—67, *E. prasina* (Brunner von Wattenwyl): (66) Sámos; (67) holotype; 68, *E. icariensis* sp. n., holotype; 69, *E. astyla* (Ramme), Skonef; 70, *Uvarovistia* (*Karabagia*) *uvarovi* (Karabag), Mt. Lástros, Kárpáthos. Figs. 71—106. Spines on apical margin of lobes of male subgenital plate in *Eupholidoptera* species: 71—90, *E. chabrieri* (s.l.) (71—72), *E. chabrieri chabrieri* (Charpentier): (71) Col de Brouis, Castellane; (72) le Plan du Peiron, Grasse; 73—83, *E. chabrieri schmidtii* (Fieber): (73) Učka, Istra; (74) Evzonoi, Kilikis; (75) Klisoúra, Kastoria; (76) Epirus, Erber leg.; (77—78) Botzarás, (79) Kaléntzion, (80) Kalpákion, (81—82) Asfáka, all Ioánni-

garganica is pointed out below, that from *E. chabrieri bimucronata* is given in figs. 51, 90, 163—164.

Remarks. — As outlined above, part of the Greek material agrees with several subspecies as hitherto understood. This may be demonstrated by comparison of figs. 125—126 and 131—132 with figs. 133—136 showing the epiphalli of *E. chabrieri magnifica*, *E. chabrieri kaltenbachii* and Greek specimens, respectively; or of figs. 127—130, representing *E. chabrieri schmidtii* from Istra, and figs. 139—140 and 145—146 made after Greek specimens. The remainder of the Greek material does not fit precisely into any known form (figs. 137—138, 141—144, 147—148). Apparently the degree of variation, at least among Greek populations, is larger than has been thought. I propose to allocate all this material to *E. chabrieri schmidtii* and consider *E. chabrieri magnifica* (Costa, 1863) and *E. chabrieri kaltenbachii* Adamović, 1972, synonyms of *E. chabrieri schmidtii* (Fieber, 1861). Whether the distinction between this subspecies and the nominate form is justifiable, is quite doubtful. This question, however, is not settled here.

Distribution. — The range of the subspecies as here understood is not well defined. I studied material from Istra and Slovenija, Hrvatska, Serbia, Yugoslav Makedonija, N.W. Greek Makedhonía, E. Ípiros (map), Central and S.W. Italy.

***Eupholidoptera chabrieri garganica* La Greca, 1959, stat. nov.**
(figs. 11—14, 49—50, 84—89, 153—162)

Thamnotrizon schmidtii Fieber, 1861: 197 (only Corfu).

Eupholidoptera garganica La Greca, 1959: 66, figs. 46, 50, 64, 65, 70, 71; Kaltenbach, 1967: 190; Harz, 1969: 363, 370, 372, figs. 1118, 1119, 1145.

Eupholidoptera chabrieri schmidtii; Cejchan, 1963: 771 (partim?).

Material studied. — Kérkira: (=Corfu), Erber, coll. Br. v. W., 5860, *Pholidoptera schmidtii* Fieb. det. Ramme, 1♂; Benítses, 27.vii.1965, A. Kaltenbach, 1♂ (both NMW); Yimárior, 7♂ 7♀; Gazátika, 7♂ 6♀; Pélekas, 1♂ 1♀; Tsáki, 1♂ 1♀; Lávkion, 1♂; Lake Antinioti, 3♂ 4♀; Lake Korissíon, 4♂ 3♀; Petália, 7♂ 4♀; Períthia, 7♂ 3♀; Thesprotía: Igoumenítsa, 1♂; Préveza: Panayía, 3♂ 2♀; S. & N. of Koróni, 1♂; Nikópolis, 34♂ 22♀; Ioánnina: Mt. Tómaros 9♂ 2♀ (all CW). Italy: Foresta Umbra (Gargano), 24.vii.1957, *Eupholidoptera garganica* n.sp. La Greca det., 1♂ paratype, 1♀ allotype (IBA).

Diagnosis. — Epiphallus with extending apical parts, in lateral view, strongly recurved; fused part strongly inflated in combination with strongly reduced size of plate-like lateral expansions, as in figs. 153—162.

Variation. — The Greek material varies considerably. The shape of the epiphallus varies from the type of *E. garganica* all to that met with in *E. chabrieri schmidtii* (figs. 153—162). Variation of the cercus, spines of the subgenital plate and

na; (83) Sperlonga, Latina; 84—89, *E. chabrieri garganica* La Greca: (84—86) Gazátika, (87) lake Antinioti, (88) Benítses, all Kérkira; (89) Panayía, Préveza; 90, *E. chabrieri bimucronata* (Ramme), Colle S. Rizzo, Messina; 91—94, *E. leucasi* sp. n., paratypes; 95, *E. epirotica* (Ramme), holotype; 96—102, *E. megastyla* (Ramme): (96—98) Mt. Ólimbos, Lárisa; (99—100) Bassae, Ilía; (101—102) Mt. Erímanthos, Akhaía; 103—105, *E. smyrnensis* (Brunner von Wattenwyl): (103) Thásos; (104) Tikherón, Evros; (105) Yerakini, Khalkidhiki; 106, *Uvarovistia* (*Karabagia*) *uvarovi* (Karabag), Mt. Lástros, Kárpáthos

emargination of the hind margin of the last abdominal tergite of the male as shown in figs. 11—14, 49—50, and 153—162.

Differential diagnosis. — The subspecies may be recognized only by the form of the epiphallus. As a result of the large amount of variation the decision whether a given specimen has to be arranged under *E. chabrieri garganica* or not is sometimes arbitrary. The series of figures of the epiphallus of *E. chabrieri garganica* and other subspecies of *E. chabrieri* suggest their distinction proposed here (figs. 119—164).

Remarks. — The occurrence of transitional forms, in Greece, between typical *E. garganica* (figs. 157—158) and *E. chabrieri schmidtii* indicates that both taxa are closely related. Further indication of their close relationship is found in the forms described by Adamović (1972) under the names *E. chabrieri usi* and *E. chabrieri galvagnii*, the former from some northern Adriatic islands and the latter from Hercegovina and Montenegro. These forms, defined by the form of the epiphallus (figs. 149—152), also link *E. chabrieri schmidtii* and *E. garganica*. In a general way one can see that the epiphallus is subject to a geographical variation in which the recurvation of the extending apical parts, the inflation of the fused part and the reduction in size of the plate-like lateral expansions increases from Istra in the North along the Adriatic coastal area of Yugoslavia into the Gargano area of Italy and the coastal area of N.W. Greece in the South. Distinction at species level between *E. garganica* and *E. chabrieri* appears no longer justifiable and I propose to merge *E. garganica* in the *E. chabrieri* complex as subspecies. The question whether or not *E. chabrieri usi* and *E. chabrieri galvagnii* should be arranged under either the subspecies *schmidtii* or *garganica* is not settled here.

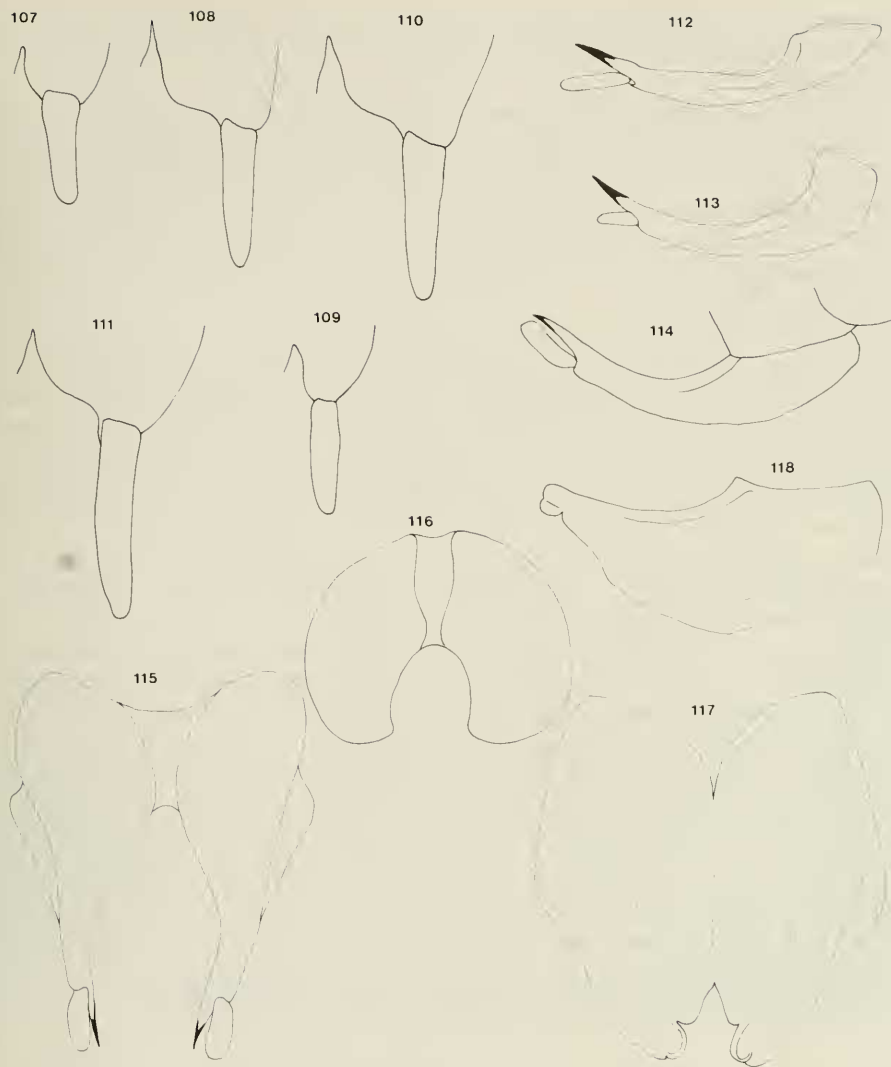
Distribution. — The range of the subspecies as now understood covers the Gargano-Foggia area of E. Italy, the Ionian island of Kérkira and the opposite part of the mainland of Greece (map). As already noted by Kaltenbach (1967) it is quite possible that the subspecies also occurs in Albania (Čejchan, 1963).

***Eupholidoptera leucasi* sp.n.**

(pl. 1 figs. 1—2; figs. 16—18, 52—53, 91—94, 165—168)

Material studied. — ♂ holotype, ♀ allotype, 9 ♂, 16 ♀ paratypes, labelled: Hellas, N. Levkádós, Levkás, Áno Exánthia, 600 m, 15.vii.1976; additional paratypes: Levkás, Nikiána, N. of Nidhríon, 5 m, 14.vii.1976, 4 ♂, 3 ♀ (all F. & L. Willemse & J. Tilmans, CW).

Diagnosis. — Differs from type-species as follows: ♂, pl. 1 figs. 1—2. Median emargination of hind margin of last abdominal tergite slightly larger (figs. 16—18). Cercus with strong inner tooth located about rectangularly and shortly distad from base of cercus (figs. 52—53). Hind margin of lobes of subgenital plate above styli stretched and terminating in two more or less closely set spines of about equal length (figs. 91—94). Epiphallus of remarkable form (figs. 165—168): fused part very short, very wide and conspicuously inflated without lateral plate-like expansions, anterior surface with median longitudinal groove and crossed by some transverse grooves; extending apical parts arising from dorso-lateral edges of fused



Figs. 107—111. Stylus of male subgenital plate in *E. megastyla* (Ramme), ventral views: 107—108, Dhimitra-Anatoli, Lárissa; 109, Elassón, Lárissa; 110—111, Kallithéa, Ilía. Figs. 112—118. Subgenital plate in *Eupholidoptera* species, ventral and/or lateral views: 112—113, *E. prasina* (Brunner von Wattenyl): (112) ♂, Khíos; (113) ♂, Sámos; 114—116, *E. icariensis* sp. n.: (114—115) ♂, holotype; (116) ♀, allotype; 117—118, *E. astyla* (Ramme), ♂, Skonef

part, parallel or slightly converging or diverging, comparatively very long, their tips reaching in situ the tooth of the cercus and in lateral view always strongly recurved in basal fourth.

♀. Much resembling type-species. Subgenital plate with moderately deep median V-like incision, lobes angulately rounded, the very hind margin sometimes curled inward. Last abdominal sternite slightly projecting in the middle.

Measurements (length in mm): body ♂ 26—32, ♀ 25—32; pronotum ♂ 11.3—13.2, ♀ 11.4—13.9; hind femur ♂ 24.5—28.8, ♀ 25.0—29.5; ovipositor 20.1—23.5.

Variation. — Shape and size of median emargination of hind margin of the male last abdominal tergite vary slightly, as in figs. 16—18. Inner tooth of male cercus varies somewhat in size, the location, however, is invariable (figs. 52—53). Spines of male subgenital plate range from divergent to very close to each other, as in figs. 91—94. The inflation of the fused part of the epiphallus may be less strong, the grooves less apparent, but the short, wide, transverse appearance is always obvious (figs. 165—168).

Differential diagnosis. — The species is well defined in the male by its resemblance with the type-species, *E. chabrieri*, in combination with the location of the cercal inner tooth and the unique form of the epiphallus. The main feature of the latter refers to the combination of strongly recurved and basally widely separated extending apical parts with very short and widely inflated fused part. In *E. hesperica* La Greca, 1959, the fused part is also very short but apparently less wide and the extending apical parts by far less strongly recurved. Somewhat similar extending apical parts are found in *E. chabrieri garganica* La Greca, *E. palaestinensis* (Ramme), *E. anatolica* (Ramme), *E. forcipata* Willemse & Kruseman and *E. ledereri* (Fieber). In these species, however, the fused part of the epiphallus is quite different. Opportunity is taken here to figure more fully the epiphallus of *E. palaestinensis* (figs. 171—172) (Ramme, 1939: fig. 26p, dorsal view only). The female of the new species is indistinguishable or almost so from that of the type-species and some others, e.g. *E. megastyla*.

Remarks. — The distinction of *E. leucasi* at species level is justifiable on account of obvious and stable differences in at least two important characters and absence of intermediate forms, especially in regard to *E. chabrieri garganica*, whose range adjoins that of the new species. The tendency of the geographical variation of the epiphallus among *E. chabrieri* in the Adriatic area, as pointed out above, reaches a climax in *E. leucasi*. The new species was found along the road in *Rubus*, *Cirsium* and other prickly shrubs.

Distribution. Known only from the Ionian island of Levkás (map).

Eupholidoptera epirotica (Ramme, 1927)

(pl. 1 figs 3—4; figs. 19—20, 54, 95, 169—170)

Thamnotrizon chabrieri; Brunner von Wattenwyl, 1882: 335 (Varietät aus dem Epirus).

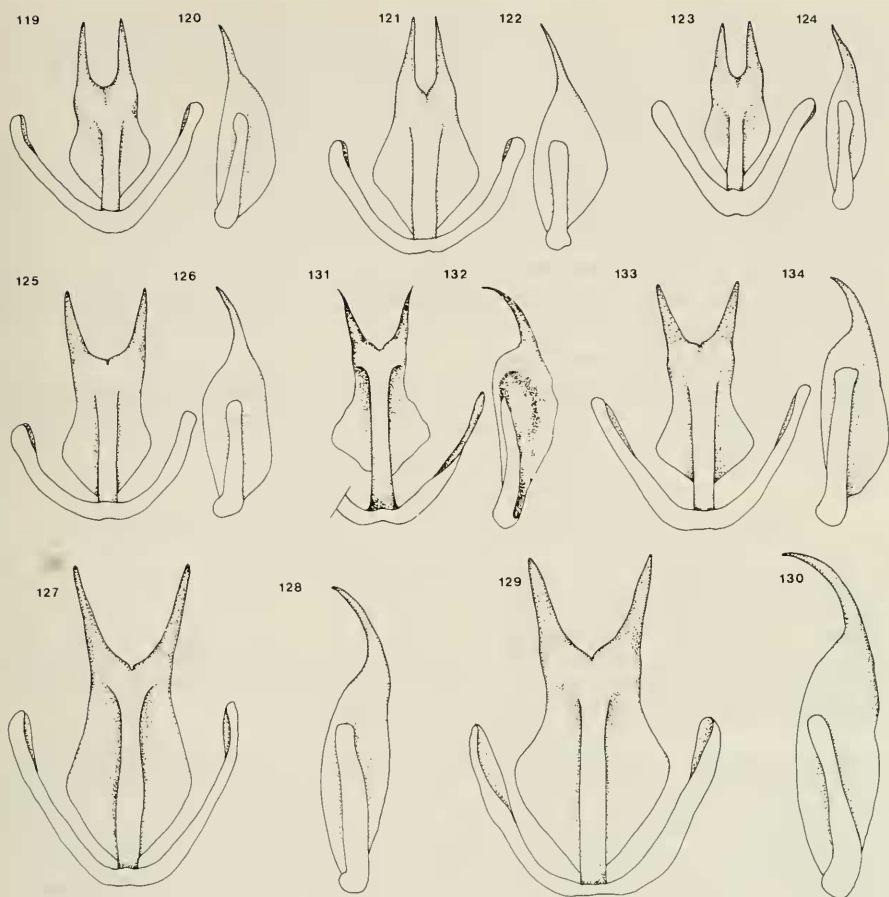
Pholidoptera epirotica Ramme, 1927: 132, figs. 11b, 12.

Pholidoptera schmidtii epirotica; Ramme, 1930: 812.

Eupholidoptera epirotica; Ramme, 1951: 198, 203, 206, 207, 209, figs. 44e, 48e, 50; La Greca, 1959: 67; Kaltenbach, 1967: 197.

Eupholidoptera chabrieri epirotica; Harz, 1969: 371, figs. 1122, 1140, 1142.

Material studied. — ♂ holotype, ♂ paratype, labelled: Epirus, Erber Coll. Br. v. W., *Pholidoptera epirotica* Ramme det. Ramme, Type & Paratypus; Kérkira: (= Corfu), coll. Werner, 1 ♀ (all NMW).



Figs. 119—130. Epiphallus in *Eupholidoptera* species, anterior and left lateral views: 119—130, *E. chabrieri* (s.l.): 119—124, *E. chabrieri chabrieri* (Charpentier): (119—120) Col de Brouis, Castellane; (121—122) Col de l'Ablé, Lucéram; (123—124) Mt. Puzzillo, Velino Mts.; 125—130, *E. chabrieri schmidti* (Fieber): (125—126) Sperlonga, Latina; (127—130) Učka, Istra

Diagnosis. — Differs from type-species as follows: ♂, pl. 1 fig. 3. Emargination of hind margin of last abdominal tergite slightly wider (figs. 19—20). Cercus slightly longer and more slender (fig. 54). Epiphallus with extending apical parts, in lateral view, very slightly recurved; fused part without plate-like lateral expansions, much longer than wide, tapering basally, regularly convex laterally, anterior surface with median longitudinal groove (figs. 169—170).

Occiput and prozona of pronotal dorsum broadly black in the middle.

♀, pl. 1 fig. 4. Lobes of subgenital plate slightly more broadly rounded. Coloration as male.

Variation. — Morphological features of both males are similar. The coloration of the type and the female are similar, that of the paratypic male, however, differs in the less conspicuously black coloration of the occiput and the pronotum.

Differential diagnosis. — The species is defined by the resemblance to the type-species, *E. chabrieri*, in combination with the characteristic form of the epiphallus. The reliability of other features, e.g. the black coloration of occiput and pronotum, cannot be judged because of lack of material.

Remarks. — In the collection of Brunner von Wattenwyl there is another pair bearing locality labels similar to those of the types of *E. epirotica*. This pair is quite distinct and agrees fully with *E. chabrieri schmidtii*. Similarly, no specimens were found among other material linking *E. epirotica* with *E. chabrieri*.

On account of the apparently distinct form of the epiphallus, lack of intermediate forms and the sympatric occurrence of *E. chabrieri* (s.l.), *E. epirotica* is provisionally regarded a distinct species. Additional material, however, is needed to establish this assumed status.

Distribution. — Known only after the types from Ípiros and the female from Kérkira (Kaltenbach, 1967), unfortunately both without precise localities (map).

***Eupholidoptera megastyla* (Ramme, 1939)**

(figs. 21—27, 56—63, 96—102, 107—111, 173—180, 184, 185)

Thamnotrizon chabrieri; Brunner von Wattenwyl, 1882: 334 (only Parnass).

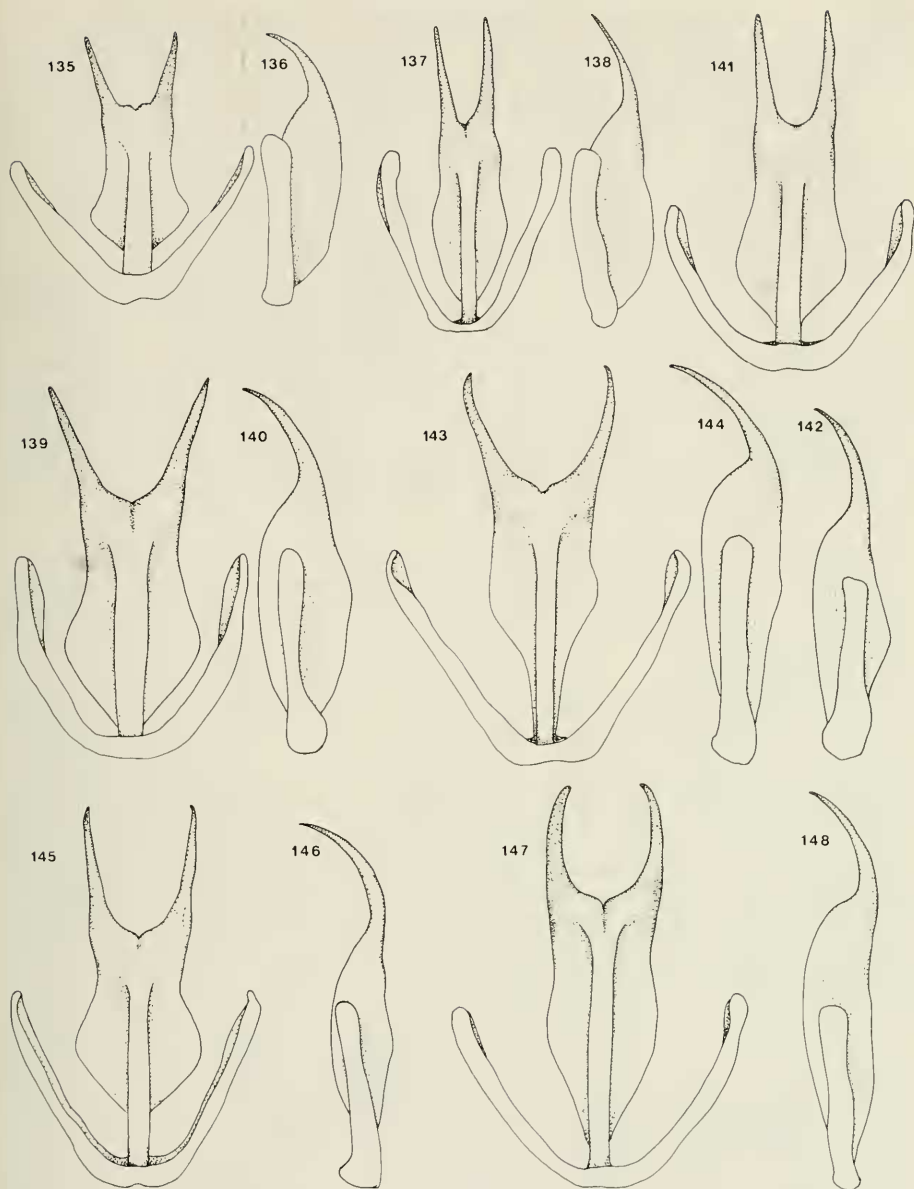
Pholidoptera chabrieri; Werner, 1933a: 407 (?); 1938: 169 (?).

Pholidoptera megastyla Ramme, 1939: 101, fig. 28.

Eupholidoptera megastyla; Ramme, 1951: 198, 203, 205—207, 211, figs. 48, 50; La Greca, 1959: 65; Kaltenbach, 1967: 197; Harz, 1969: 362, 367, 373, figs. 1110, 1148—1150; Willemse, 1971: 17; 1974: 352.

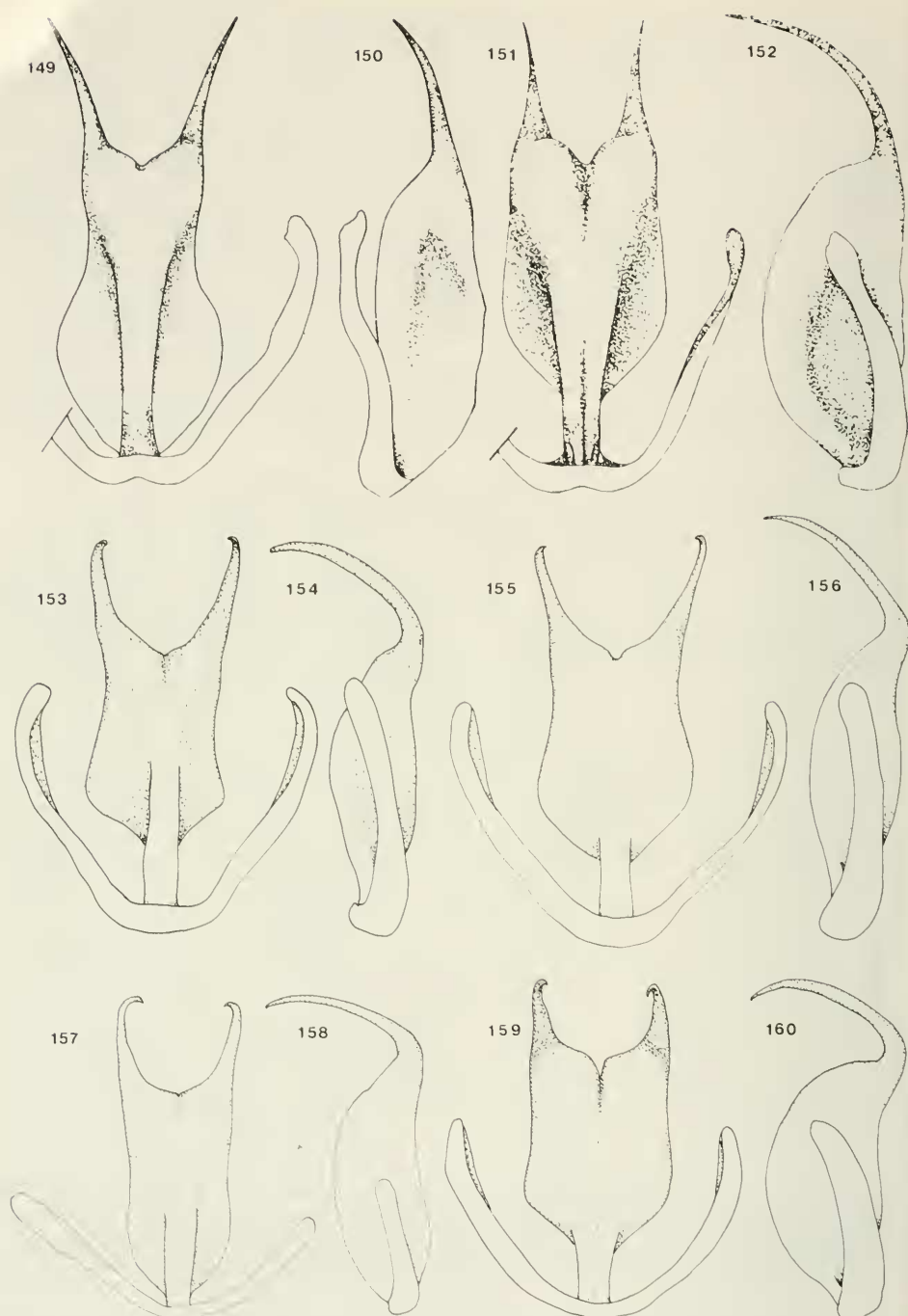
Eupholidoptera danconai La Greca, 1959: 65, figs. 47, 49, 63. Syn. nov.

Material studied. — Makedhonía: Pélla: Édhessa, 23.viii.1965, Blommers e.a., 1 ♂ 4 ♀ (ITZ); Kozáni: Velvendós, 9 ♂ 6 ♀; Neápolis, 5 ♂ 1 ♀; Grevená: Paraskeví, near Dheskáti, 2 ♂; Piéria: Ftéri, 1 ♂; Litókhonon, 15 ♂ 17 ♀ (all CW); Mt. Ólimbos, W. of Litókhonon, 1450 & 1750 m, 13.vii. & 2.viii.1965, 3 ♀; Kolindrós, 10 km W., 24—26.vii.1965, 1 ♂ (both Blommers e.a., ITZ); Leptokariá - Kariá, 2 ♂. Thessalía: Lárisa: Mt. Ólimbos, refuge B, 8 ♂ 19 ♀; Elassón, 20 km NW., 1 ♂, 4 km W., 2 ♂ 2 ♀ (all CW); Tírnafos, 17.viii.1965, Blommers e.a., 1 ♂ 4 ♀ (ITZ); Dhímitra - Anatolí, 5 ♂ 24 ♀; Magnisiá: Mt. Pílion, above Portaria, 1 ♂ (CW); Lekhónia, 7—11.viii.1965, Blommers e.a., 1 ♂ (ITZ). Ípiros: Árta: Rámia-Livádhion, 6 ♂ 8 ♀. Stereá Ellás: Aitolía - Akarnanía: Kokkinokhórion, 2 ♂ 3 ♀ (both CW). Fthiótis: Pelasyía, 6.vii.1976, J. P. Duffels, 1 ♂ (ITZ); Timfristós village, 1 ♂ 1 ♀; Mt. Oíti, above Pávliani, 1 ♀; Melidhoní, 6 ♂ 10 ♀; Fokis: Mt. Vardhouisia, above Mousounítsa, 1 ♂; Évvoia: Stení-Kathenoí, 2 ♂ 2 ♀ (all CW); Kími, 30.vi.1971, A. Kaltenbach, 1 ♂ (NMW); Voiotía: Mt. Parnassós above Arákhova, 2 ♂ (CW), Krüper coll. Br. v. W., 1704, *Pholidoptera schmidtii* Fieb. det. Ramme, 1 ♀ (NMW). Pelopónnisos: (= Morea), Staudinger, coll. Br. v. W., 19.5.24, *Eupholidoptera megastyla* Ramme det. Kaltenbach, 1 ♂ (NMW); Korinthía: Á. Eléni, 1 ♂ 4 ♀; Argolis: Návplion, 3 ♀; Ligouríon, 2 ♂; Mt. Kteniás, Akhladhókambos, 11 ♂ 7 ♀; Lakonía: Mistrás, 2 ♂; Skála, 1 ♂ 1 ♀; Mt. Taíyetos, above Anóyia, 4 ♂ 10 ♀, E. of Spárti, 3 ♂ 3 ♀; Messiniá: Kámbos, 8 ♂ 9 ♀; Mikrá Mandhínia, 1 ♂; Arkadhía: Karitaina, 1 ♂; Ipsóus 5 ♂ 5 ♀; Khrissovítsi, 8 ♂ 2 ♀; Kápsia, 1 ♂ 1 ♀; Mt. Párnon 2 ♂ 1 ♀ (all



Figs. 131—148. Epiphallus in *Eupholidoptera* species, anterior and left lateral views: 131—148, *E. chabrieri schmidtii* (Fieber): (131—132) Yugoslav Makedonija (*E. chabrieri kaltenbachii* Adamović, after Adamović, 1972); (133—134) Alona, Flórina; (135—136) Évzonoi, Kilkís; (137—138) Klisoúra, Kastória; (139—142) Kalpákion, (143—144) Kaléntzion, (145—146) Botzarás, all Ioánnina; (147—148) Kattaráktis, Arta

CW); Dhimitsána, 14.vii.1977, M. & J. Duffels, 1 ♂ 1 ♀ (ITZ); Akhaïa: Mt. Panakhaikón, above Zástova, 5 ♂ 2 ♀; Mt. Erímanthos, above Káléntzion,



Figs. 149—160. Epiphallus in *Eupholidoptera* species, anterior and left lateral views: 149—150, *E. chabrieri galvagnii* Adamović, 151—152, *E. chabrieri usi* Adamović (both after Adamović, 1972); 153—160, *E. chabrieri garganica* la Greca: (153—154) Perithia, (155—156) lake Antinioti, both Kérkira; (157—158) Foresta Umbra, Gargano (paratype of *E. garganica*); (159—160) Gazátika, Kérkira

3 ♂ 5 ♀; Aroánia village, 6 ♂ 3 ♀; Mt. Aroánia, above Kalávrita, 3 ♂; Páos, 1 ♀; Vlasía, 1 ♂ 2 ♀; Ilía: Lekhainá, 3 ♂ 1 ♀; Kallithéa, 6 ♂ 3 ♀; Bassae, ruins, 3 ♂ 4 ♀; Róvia, 1 ♀ (all CW). Italy: Irsima (Matera), 21.vii.1957, *Eupholidoptera danconai* n.sp. La Greca det., 1 ♂ paratype, 1 ♀ allotype (IBA).

Diagnosis. — Differs from type-species as follows. ♂: Styli of subgenital plate of variable length (figs. 107—111). Epiphallus very slender, extending apical parts close together, in lateral view not or scarcely recurved, almost as long as length of fused part, which is slender with plate-like lateral expansions but slightly developed, as in figs. 173—180, 184, 185.

Variation. — Width of emargination of the hind margin of the last abdominal tergite in the male varies, as in figs. 21—27. Length, incurvation and shape of the basal tooth of the male cercus as in figs. 55—63. One or two spines on the apical margin of the lobes of the male subgenital plate, as in figs. 96—102. Length of the styli quite variable, sometimes very long, reaching two thirds length of cercus, as in figs. 107—111. Also the epiphallus varies considerably in length, the shortest one about half as long as the longest (figs. 173—180, 184, 185). The coloration usually resembles that of the type-species. Several specimens from some localities (Kámbos, Melidhoní, Neápolis), however, differ in the degree of reduction of the black pattern of the pronotum and hind femur. The populations from Mt. Kteniás and Mt. Párnion differ even more conspicuously from the remainder: general colour yellow to orange brown and bright malachite green instead of dirty brown and dark green; pronotum without any black, lower margin bordered castaneous brown; elytra brown; hind femur with few apical streaks and tip black.

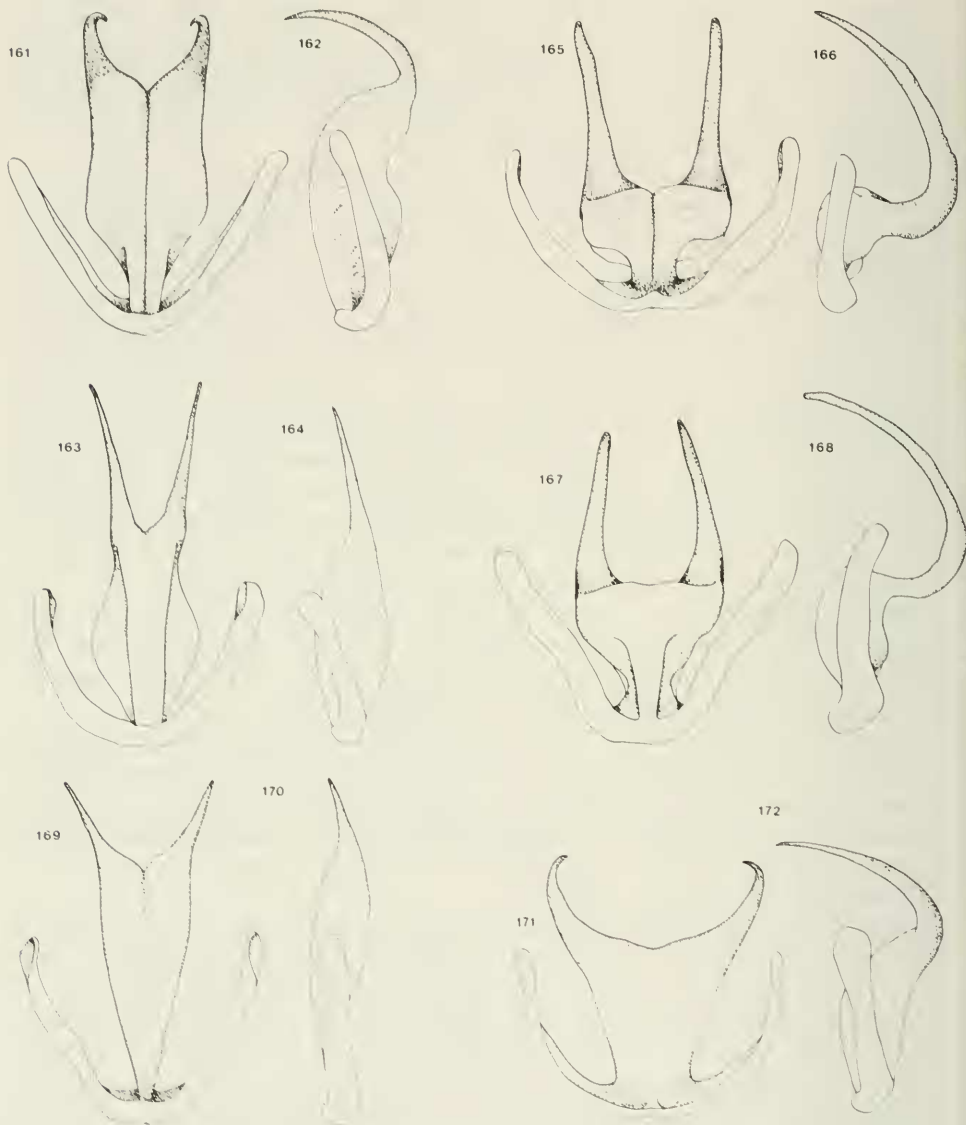
Differential diagnosis. — The male of this species may be distinguished from others by its combination of resemblance with the type-species and the characteristic epiphallus. The length of the styli seems to be no reliable character. The female is indistinguishable from that of the type-species.

Remarks. — The large amount of variation has been given special attention in regard to the existence of subspecies. However, these could not be established. Instead it came out that *E. danconai* La Greca, 1959 (fig. 176), known from the extreme southeastern part of Italy, agrees fully with some samples before me from diverse localities assigned to *E. megastyla*. Therefore I propose to consider *E. danconai* a synonym of *E. megastyla*.

Hitherto *E. megastyla* was known only from the type-species from the island of Zákynthos and scanty material recorded from the Pelopónnisos (Kaltenbach, 1967; Harz, 1969; Willemse, 1971) and Mt. Ólimbos (Willemse, 1974). The Parnass record (Brunner von Wattenwyl, 1882, under *E. chabrieri*) refers to a single female, which I have now at hand and is indistinguishable from the female of *E. chabrieri*. Whether this locality refers to the presently named Mt. Parnassós (= Parnassus) or to Mt. Párnis (= Parness), NE of Athínai is an open question. On account of the ranges of *E. chabrieri* and *E. megastyla* the specimen is now assigned to the latter. Werner's records of *E. smyrnensis* (= *chabrieri* auct.) from the islands of Skópelos (1933a) and Skíathos (1938) refer to *E. megastyla* rather than to *E. smyrnensis* (these localities are omitted on the map).

Distribution. — The range of *E. megastyla* as now understood (map) covers the

Ionian island of Zákynthos, the Pelopónnisos, southern continental Greece including Evvoia, S.W. Makedhonía, and extreme S.E. Ipiros, extending into S.E. Italy. In Árta *E. megastyla* occurs very close to *E. chabrieri*, but sympatric occurrence could not be established.



Figs. 161—172. *Epiphallus* in *Eupholidoptera* species, anterior and left lateral views, of: 161—162, *E. chabrieri garganica* La Greca, Gazátika, Kérkira; 163—164, *E. chabrieri binucronata* (Ramme), Mandanica, Messina; 165—168, *E. leucasi* sp. n., paratypes; 169—170, *E. epirotica* (Ramme), holotype; 171—172, *E. palaestinisensis* (Ramme), Tiberias, Israel

***Eupholidoptera smyrnensis* (Brunner von Wattenwyl, 1882)**
(figs. 28—29, 64—65, 103—105, 181—183)

Thamnotrizon smyrnensis Brunner von Wattenwyl, 1882: 336; Werner, 1901: 293.

Pholidoptera smyrnensis; Berland & Chopard, 1922: 168; Burr, Campbell & Uvarov, 1923: 124, 140, 152.

Pholidoptera chabrieri; Ramme, 1927: 128; Werner, 1933a: 407 (?); 1933b: 194; 1937b: 109; 1938: 169 (?).

Eupholidoptera smyrnensis; Ramme, 1951: 198, 204, figs. 44—46, 48, 50; Kaltenbach, 1965: 473; 1967: 195; Harz, 1969: 373, figs. 1129, 1151—1154 (? Skopelos; not Kárpáthos & Ikária).

Pholidoptera festae Giglio Tos, 1914: 5. **Syn. nov.**

Pachytrachelurus festae Giglio Tos, 1914: 6; Ramme, 1930: 809; Harz, 1969: 373.

Pholidoptera chabrieri festae; Ramme, 1930: 809; Jannone, 1936: 135; Salfi, 1937: 3.

Eupholidoptera smyrnensis festae; Ramme, 1951: figs. 44, 50; Kaltenbach, 1967: 192.

Material studied. — Makedhonía: Khalkidhiki: Yerakiní, 1 ♂; Dráma: Adhrianí, 1 ♀ (both CW); Kaválla: Thásos, Panayía, 17.vii.1963, S. Daan & V. v. Laar, 1 ♂ 1 ♀ (ITZ). Dhitikí Thráki: Évros: Tikhérón, 1 ♂ 3 ♀; Amórion, 1 ♂; Souflíon, 1 ♂ (all CW). Sámos: Kouítsi, 25—27.vi. & Iraíon, 13.vi. & Pedhiás Valmarís, 29.vi.1977, M. C. & G. Kruseman, 5 ♂ 2 ♀ (all ITZ).

Diagnosis. — Differs from type-species as follows. ♂: Median emargination of hind margin of last abdominal tergite much wider, lobes acute (figs. 28—29). Cercus shorter (figs. 64—65). Pair of short spines of equal length on apical margin of lobes of subgenital plate (figs. 103—105). Epiphallus with extending apical parts from slightly convergent to distinctly divergent, in lateral view moderately recurved; fused part of variable width, plate-like lateral expansions well developed (figs. 181—183). Pronotal lateral lobe usually solid black with well delimited yellowish fascia bordering lower margin. Elytron less solid black. Black markings of hind femur usually confined to upper half.

♀: Lobes of subgenital plate triangular, apex more acute. Coloration as in male.

Variation. — Lobes of the last abdominal tergite of the male range from pointing ventrad to ventro-laterad (figs. 28—29). Variation of epiphallus is considerable, already noted by Ramme (1951). Some extreme examples are figured here (figs. 181—183).

Differential diagnosis. — The species comes near the type-species but may readily be distinguished by the very wide median emargination of the hind margin of the last abdominal tergite in the male. The distinction of the female, however, is more difficult. The form of the lobes of the subgenital plate and the coloration may be helpful.

Remarks. — The subspecific distinction of the Ródhos populations under the name *E. smyrnensis festae* (Giglio Tos, 1914) seems not justified. The characters noted by Ramme (1930; 1951: figs. 44, 50) are widely overlapped by the variation of the material before me. I propose to merge the taxon in *E. smyrnensis*.

The species has been recorded from numerous localities in Greece. Most of these records seem correct, some however are doubtful and a few incorrect. Reliable records are indicated on the map and are summarized here: Makedhonía — Vassiliká (Berland & Chopard, 1922); Lembet, Ak Bunar, Aivatli, Naresh and Hortiack plateau (Burr, Campbell & Uvarov, 1923); Kalamíka (Kaltenbach, 1967); Aegean Is — Límnos (=Lemnos), Kástron (Werner, 1937b; Kaltenbach, 1967); Lésvos (=Mytilene) (Werner, 1901; Berland & Chopard, 1922; Ramme, 1927;

Werner, 1933a?); Sámos, Marathókambos (Werner, 1933b, 1937b; Kaltenbach, 1967); Nísiros (Ramme, 1927); Ródhos (Giglio Tos, 1914; Ramme, 1927, 1930; Salfi, 1937), Villanova (Jannone, 1936), Rodhíni (Kaltenbach, 1967). Other records of *E. smyrnensis* (or *E. chabrieri* auct.), however, are omitted or referred to other species, viz., Kíthira (Werner, 1937a) referred now to *E. spinigera*; Kumani, the Pelopónnisos (Ramme, 1927) omitted, being far out of the range of *E. smyrnensis* and presumably based on a misidentified female of *E. megastyla*; Skópelos (Werner, 1933a) omitted, referring to a juvenile female of which identification is considered unreliable; Skíathos (Werner, 1938) omitted as *E. megastyla* rather than *E. smyrnensis* occurs in that island; Yiannitsá (= Yenidje-Vardar), Pélla distr., (Berland & Chopard, 1922) omitted, as the record refers to a female and its identification needs confirmation, because all *E. smyrnensis*, *E. megastyla* and *E. chabrieri* may occur in this area; Ikaría (Werner, 1933b) discussed now under *E. ikariensis*; Kárpáthos (Werner, 1936) assigned now to *Uvarovistia* (*Karabagia*) *uvarovi*.

Distribution. — The range extends from central Greek Makedhonía, via Dhitiki Thráki, S. Bulgaria into Anatolia and some eastern Aegean islands (map).

***Eupholidoptera prasina* (Brunner von Wattenwyl, 1882)**

(pl. 1 fig. 6, pl. 2 fig. 5; figs. 30—31, 66—67, 112—113, 189—190)

Thamnotrizon prasinus Brunner von Wattenwyl, 1882: 337; Werner, 1901: 293.

Pholidoptera prasina; Ramme, 1930: 816, figs. 5, 6, 8, 9; Werner, 1933b: 194; 1934: 326; 1937b: 109.

Eupholidoptera prasina; Ramme, 1951: 198, 203, 206, 211, figs. 49, 51; Harz, 1969: 376, figs. 1113, 1115, 1157, 1158.

Material studied. — ♂ holotype, labelled: Smyrna, Coll. Br. v. W. Br. v. W. leg., *prasinus* m. det. Br. v. W., 5942, Type; Sámos: Marathókambos, v. Oertzen, *Pholidoptera prasina* Br. Ramme det., 1♂; Khíos: 30.vi.1936, Werner, *Pholidoptera prasina* Br. coll. Werner, 2♂ (all NMW).

Diagnosis. — ♂, pl. 1 fig. 6, pl. 2 fig. 5. Pronotal dorsum smoothly rounded laterally. Elytron reaching hind margin of first abdominal tergite. Hind femur comparatively short. Last abdominal tergite strongly downcurved, hind margin with moderately deep and wide median emargination, lobes acute (figs. 30—31). Cercus without tooth, slender, proximal half very slightly incurved, in the middle of length abruptly tapering into distal half which is straight, apex obtusely pointed (figs. 66—67). Subgenital plate divided into small basal triangular part and pair of elongate lobes; lobes strongly extending and narrowing distad, terminating in needle-like spine, ventral surface with longitudinal ridge with stylus on its distal end, located on base of terminal spine; length of stylus and spine about equal (figs. 112—113). Epiphallus small, fused part narrow, short and cylindrical, extending apical parts widening laterally, in antero-posterior view roughly circular to heart-shaped, fused basally, incised apically, as in figs. 189—190.

General colour yellowish brown to pale green. Face with some symmetrically arranged black points. Hind edge of occiput black. Black stripes from upper margin of eye distad. Pronotum with black spot in dorso-posterior part of lateral

lobe, not reaching hind margin. Middle of elytron and first abdominal tergite black. Last abdominal tergite completely black. Fore and middle legs with few black markings, hind femur near the knee and often dorsally in the middle of length black.

♀. Not at hand. Reference is made to the description by Ramme (1930).

Variation. — Among the scanty material before me, the variation of the epiphallus is worth mentioning (figs. 189—190).

Differential diagnosis. — The species is well defined. It comes near *E. icariensis* (pl. 2 figs. 7, 8), which differs in the form of the epiphallus, and *E. spinigera*. The latter has the styli located more proximad, the whole upper part of the pronotal lateral lobe is black and the black pattern of the hind femur is different, resembling that of the type-species.

Remarks. — Previous records of the species are confirmed by the material at hand except for the specimen from Psérimos (=Kappari) (Ramme, 1930). This material could not be traced and the locality is omitted on the map.

Distribution. — The range covers W. Anatolia, extending into the neighbouring Aegean islands of Sámos and Khíos.

***Eupholidoptera spinigera* (Ramme, 1930)**

Pholidoptera spinigera Ramme, 1930: 818, figs. 5, 6, 8, 9.

Pholidoptera chabrieri; Werner, 1937a: 147 (?).

Eupholidoptera spinigera; Ramme, 1951: 198, 204, 207, 209, 211, figs. 49; Harz, 1969: 376, figs. 1114, 1128, 1155, 1156.

Diagnosis. — Reference is made to the original description.

Differential diagnosis. — The rounded pronotal dorsum and the male subgenital plate show the species to be closely related to *E. prasina* and *E. icariensis*. It is distinguished from these two by the emargination of the last abdominal tergite and the location of the styli in the male and the coloration of the pronotal lateral lobe and hind femur.

Remarks. — The species is known only from the ♂ holo- and ♀ allotype. The epiphallus was not figured, being lost (Ramme, 1951: 209). Werner's record (1937a) of *E. smyrnensis* (= *chabrieri* auct.) refers to a juvenile pair from the island of Kithira (= Cerigo), the type-locality of *E. prasina*. This material more probably represents either *E. spinigera* or *E. megastyla*.

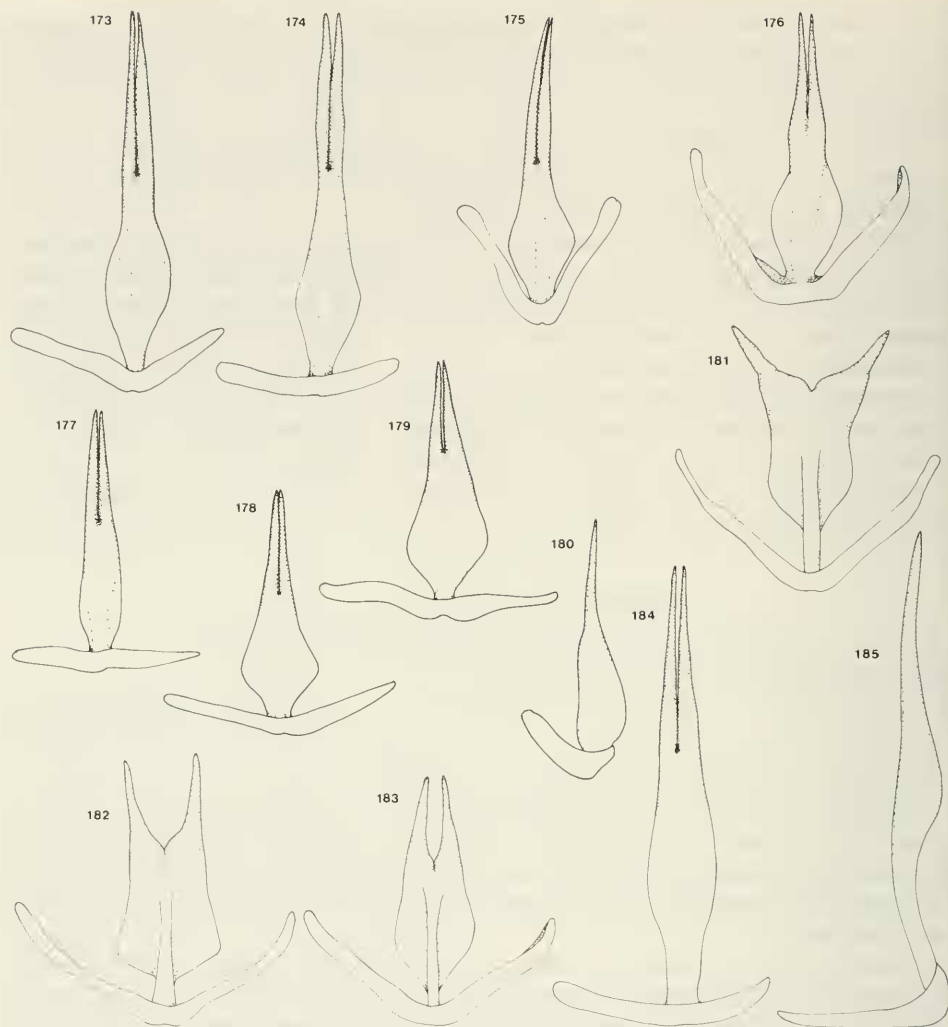
Distribution. — Known only from the island of Kithira.

***Eupholidoptera icariensis* sp.n.**

(pl. 2 figs. 7—8; figs. 32, 68, 114—116, 186)

Pholidoptera chabrieri; Werner, 1933b: 194 (?).

Material studied. — ♂ holo-, ♀ allotype, 1 ♀ paratype, labelled: Hellas Ikaría Thérma 14/21.vi.1977, M. C. & G. Kruseman; additional paratypes: Ikaría, Thérma Loutra, 16.vi.1963 & Áyios Kirikós, 17.vi.1963, S. Daan & V. v. Laar, 4 ♀ 1 juv. ♀ (all ITZ).



Figs. 173—185. Epiphallus in *Eupholidoptera* species, anterior and left lateral views, of: 173—180, *E. megastyla* (Ramme): (173) Litókhoron, Piéria; (174) Akhladhókambos, Argolís; (175) Neápolis, Kozáni; (176) Irsina, Matera (paratype of *E. dancomai* La Greca); (177) Melidhoni, Fthiótis; (178—180) Rámia-Livádhion, Árta; 181—183, *E. smyrnensis* (Brunner von Wattenwyl): (181—182) Sámos; (183) Souflión, Évros; 184—185, *E. megastyla* (Ramme), Mt. Panakhaikón, Akhaía

Diagnosis. — Differs from *E. prasina* as follows: ♂, pl. 2 fig. 7. Hind margin of last abdominal tergite narrowly and not deeply incised medially (fig. 32). Cercus slightly longer (fig. 68), subgenital plate as in figs. 114—115. Epiphallus small, fused part cylindrical without plate-like lateral expansions, extending apical parts robust and V-like diverging apically, as in fig. 186. Hind femur with few transverse dorso-basal stripes, a dorsal spot halfway its length and black apex.

♀, pl. 2 fig. 8. Last abdominal sternite slightly projecting in the middle.

Subgenital plate slightly wider than long, divided in a pair of lobes along median sulcus in proximal half; lobes with hind margin widely rounded laterally, concavely emarginate medially (fig. 116). Coloration as in male.

Measurements (length in mm): body ♂ 23.0, ♀ 22.0 — 23.0; pronotum ♂ 10.3, ♀ 9.7 — 10.2; hind femur ♂ 21.6, ♀ 21.0 — 23.0; ovipositor 15.0 — 19.0.

Variation. — Among the scanty available material the coloration of one female from Á. Kirikós is worth mentioning. In this specimen the black spot of the pronotal lateral lobe is larger, extends dorsad over the pronotal dorsum and an additional pair of black spots is present on the prozona of the pronotal dorsum.

Differential diagnosis. — The species differs from *E. prasina* mainly in the form of the epiphallus and from *E. spinigera* in the location of the styli and the coloration of the pronotum and hind femur. Besides, the species is closely related to *E. krueperi* (Ramme) and *E. unimacula* Karabag. The former species (Ramme, 1930: 819, figs.; 1951: fig.) differs clearly in the epiphallus, the female subgenital plate and the coloration of the pronotal lateral lobe and furthermore in the male cercus, subgenital plate and last abdominal tergite. The latter species (Karabag, 1956: 13, figs.) has vestigial styli and slightly different form of the epiphallus and female subgenital plate.

Remarks. — The only records of a species of the genus from Ikaría is that in Werner (1933b). It refers to a juvenile female, assigned to *E. smyrnensis* (= *chabrieri* auct.). That identification however is considered unreliable and Werner's record is referred here to *E. icariensis*.

Distribution. — Known only from the type-series from the Aegean island of Ikaría.

***Eupholidoptera astyla* (Ramme, 1927)**

(figs. 33, 69, 117—118, 187)

Pholidoptera astyla Ramme, 1927: 133, 196, 198, figs. 11d, 13, 14; 1930: 799, 821, figs. 5—7, 9; 1939: 94—96, fig. 27.

Eupholidoptera astyla; Ramme, 1951: 198, 203, 206, 209, 211, fig. 51; Harz, 1969: 362, 377, figs. 1109, 1130, 1159—1161; Willemse & Kruseman, 1976: 130, 131, figs. 1—5.

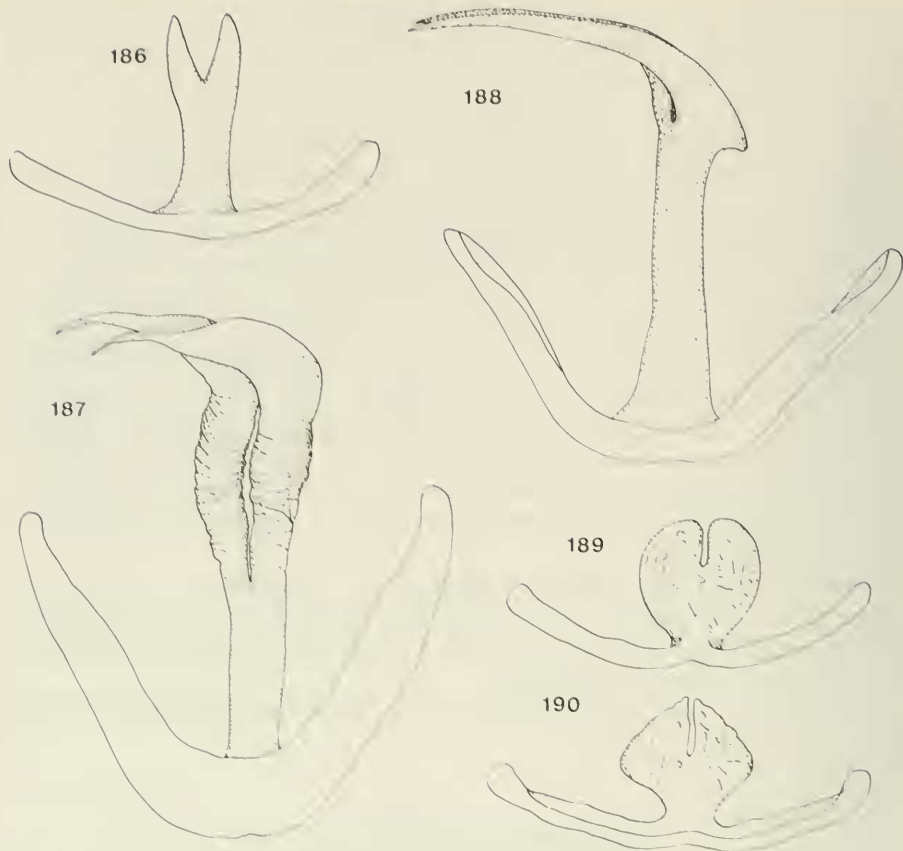
Material studied. — Kriti (?): Skonef, 23.vi, 1 ♂ (CW).

Diagnosis. — Reference is made to the descriptions in Ramme (1927, 1930, 1939).

Differential diagnosis. — The species is well defined by quite a number of characters, cf. figs. 33, 69, 117—118, 187. An asymmetrical epiphallus is found also in *Uvarovistia* (*Karabagia*) *uvarovi*.

Remarks. — Hitherto the species was known only from the original material. The male at hand agrees fully with the original descriptions and figures. The styli of the subgenital plate are not completely reduced, but minute, scale-like, seemingly immovable and located pre-apically on the ventral surface of the plate (figs. 117—118).

Distribution. — The species is known from the island of Nákxos, the Kíkladhes, and Kriti. The locality of the specimen before me could not be traced.



Figs. 186—190. Epiphallus, anterior and left lateral views, of: 186, *Eupholidoptera icariensis* sp. n., holotype; 187, *E. astyla* (Ramme), Skonef; 188, *Uvarovistia* (*Karabagia*) *uvarovi* (Karabag), Mt. Lástros, Kárpáthos; 189—190, *E. prasina* (Brunner von Wattenwyl), (189) holotype, (190) Khios

Eupholidoptera cretica Ramme, 1951

Eupholidoptera cretica Ramme, 1951: 198, 202, 203, 211, figs. 47, 51; Harz, 1969: 362, 377, figs. 1111—1112; Willemse & Kruseman, 1976: 130, 131, figs. 6—9.

Diagnosis. — Reference is made to the original description.

Differential diagnosis. — The species is readily distinguished by a number of characters (see key).

Remarks. — Hitherto the species is known only from the male holotype.

Distribution. — The type is from Samariá, western Kríti.

Eupholidoptera forcipata Willemse & Kruseman, 1976

Eupholidoptera latens Willemse & Kruseman, 1976

Eupholidoptera pallipes Willemse & Kruseman, 1976

Eupholidoptera gemellata Willemse & Kruseman, 1976

Reference is made to the original descriptions and discussions of these species (Willemse & Kruseman, 1976: 130—137, pls. 2—8 figs. 7—41). They are well defined and all from Kriti.

Uvarovistia Ramme, 1951

Uvarovistia Ramme, 1951: 195, 197, 212.

Type-species: *Olynthoscelis zebra* Uvarov, 1916.

Diagnosis. — Reference is made to the original description.

Differential diagnosis. — The genus is close to *Eupholidoptera* and may be distinguished from the latter by the coloration of the distal abdominal tergites and the ovipositor. In *Uvarovistia* the last abdominal tergite is partly or completely black and the colour extends over the lateral parts of the penultimate tergite; the ovipositor is comparatively more robust, shorter and wider in dorsal view, i.e. less compressed laterally.

Remarks. — Ramme erected the genus on the basis of a well defined group of four species. He studied the epiphalli of three species and found their forms to resemble each other remarkably.

Kaltenbach (1967) arranged *Eupholidoptera uvarovi* Karabag under *Uvarovistia* on account of the black coloration of the distal abdominal tergites. Other characters of this species, however, agree with some species of *Eupholidoptera* rather than with members of *Uvarovistia*. Presumably for these reasons Harz (1969) erected for *U. uvarovi* the subgenus *Karabagia*, but he omitted to point out the distinction between this new subgenus and the nominate taxon. As remarked under *Eupholidoptera*, however, a review of supra-specific groupings in the tribe Pholidopterini can best be postponed for the time being.

Distribution. — The range of the nominate subgenus covers Iran, Iraq and Armenia, that of monotypic *Uvarovistia* (*Karabagia*) the Aegean Island of Kárpáthos.

***Uvarovistia* (*Karabagia*) *uvarovi* (Karabag, 1952) (pl. 2 figs. 9—10; figs. 70, 106, 188)**

Pholidoptera chabrieri; Werner, 1936: 12.

Pholidoptera (*Eupholidoptera*) *uvarovi* Karabag, 1952: 135, figs. 1—5.

Uvarovistia uvarovi; Kaltenbach, 1967: 197.

Uvarovistia (*Karabagia*) *uvarovi*; Harz, 1969: 384, figs. 653, 654, 1182—1186.

Material studied. — Kárpáthos: Chamili-Sattel bei Volada, 15—18.vi.1935 & Lastros Gebirge, 15.vi.1935, O. Wettstein, *Pholidoptera chabrieri* Charp. det. Werner, 1 ♂ 2 ♀ (NMW).

Diagnosis. — Reference is made to the original description.

Variation. — Insufficiently known.

Differential diagnosis. — From the species of nominate *Uvarovistia* this species is quite distinct in the asymmetrical epiphallus (fig. 188), the very short male cercus (fig. 70), the slender ovipositor and the well defined yellow fascia bordering

throughout the lower margin of the pronotal lateral lobe (pl. 2, fig. 9). From *Eupholidoptera* it differs in the black coloration of the lateral parts of the penultimate abdominal tergite.

Remarks. — The species seems to link nominate *Uvarovistia* with *Eupholidoptera*. An asymmetrical epiphallus is found also in *E. astyla*, the male subgenital plate (fig. 106) is much the same as in *E. smyrnensis*, the emargination of the hind margin of the last abdominal tergite in the male and the coloration of the pronotum and hind femur are found in several species of *Eupholidoptera*, and the slender ovipositor even in all species of that genus.

The material at hand refers to that recorded by Kaltenbach (1967) and by Werner (1936).

Distribution. — Known only from the island of Kárpáthos, the Dhodhekánisos (map).

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